FFGS CAP Integration

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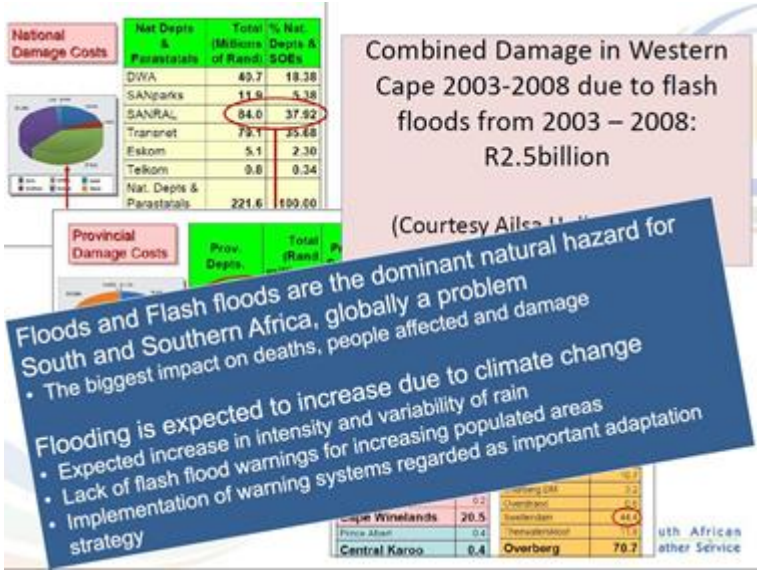
Flash Floods and Impacts

United Nations International Strategy for Disaster Reduction (UNISDR):

- Floods and flash-floods are natural hazards with highest frequency of occurrence (43.4% of total)
- Floods and flash floods affect most people (~2 bill $US over last 20 years; 48% of total affected by all hazards)

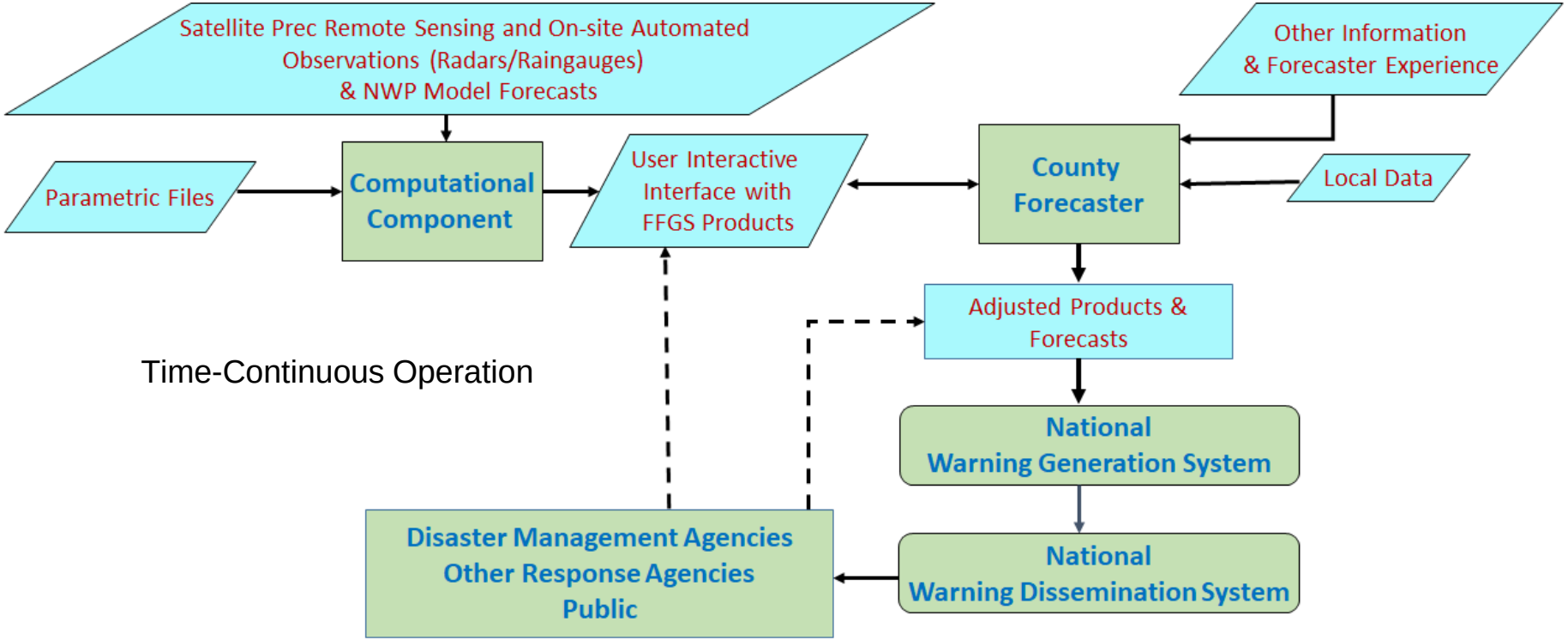
Earlier Studies:

- Very high mortality rate among natural hazards



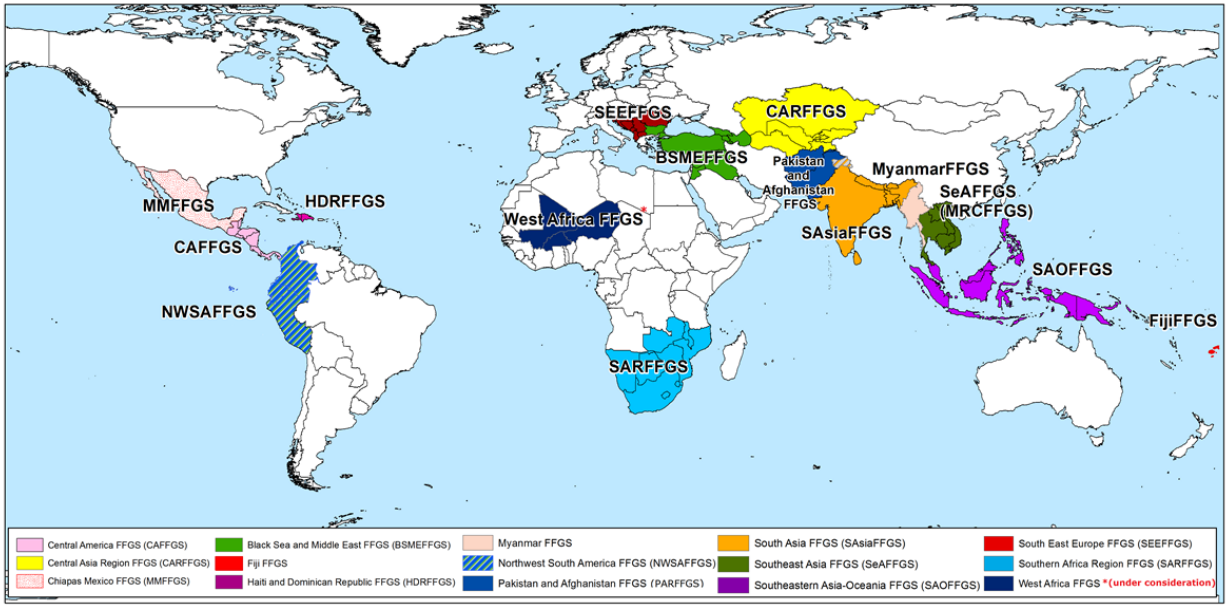
Flash Flood Guidance System

From Global Data and Regional Hydrometeorology to National Data and Warnings



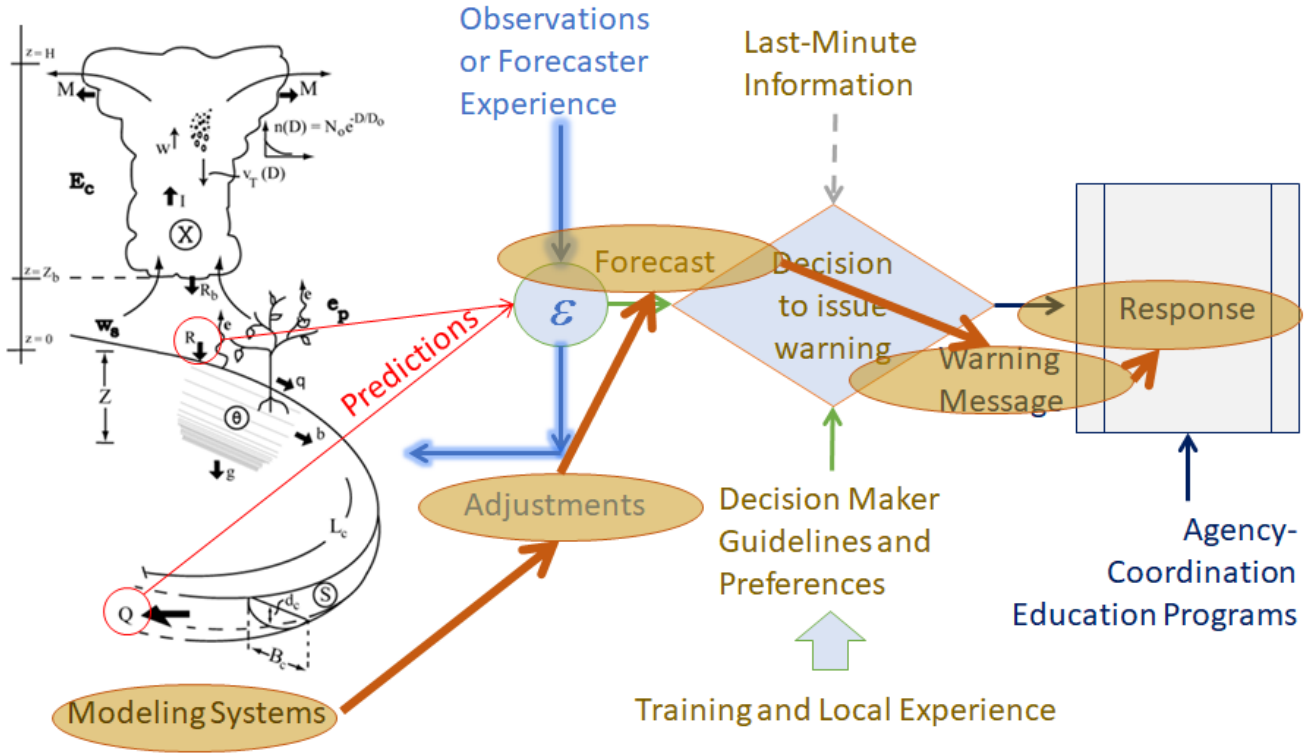
FFGS Application Worldwide

More than 60 Countries with 11 Regional Centers



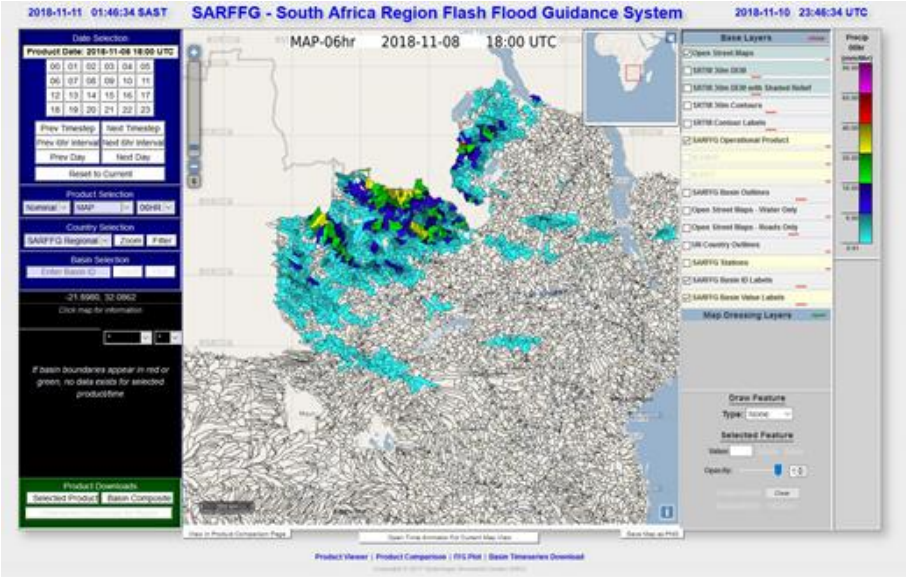
The Global Initiative for Flash Floods (2008-Present)
USAID/BHA - WMO - NOAA - HRC

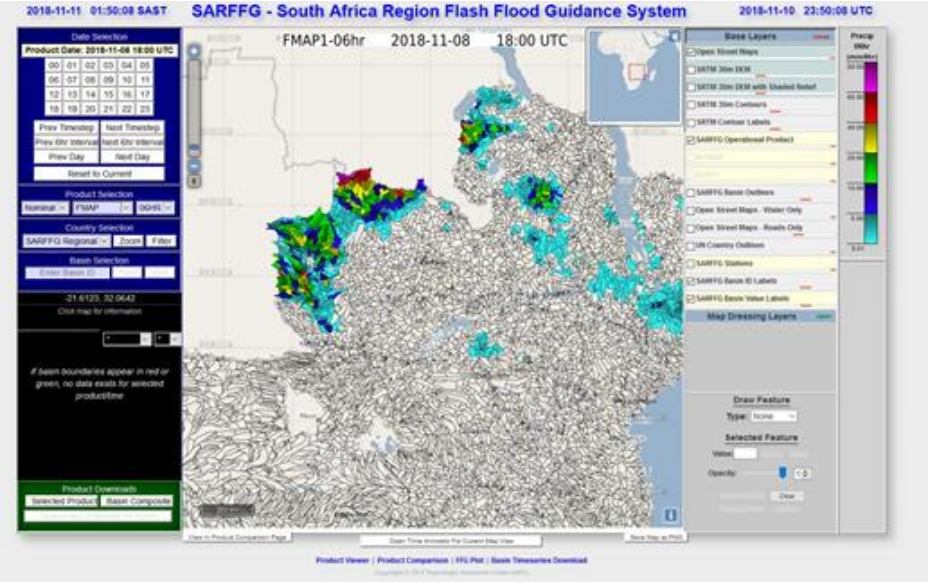
Integrated Systems Perspective for Real-Time Warning



Forecaster Interactive Interface (Multiple Products)

Examples from Southern Africa Region FFGS (SARFFGS)



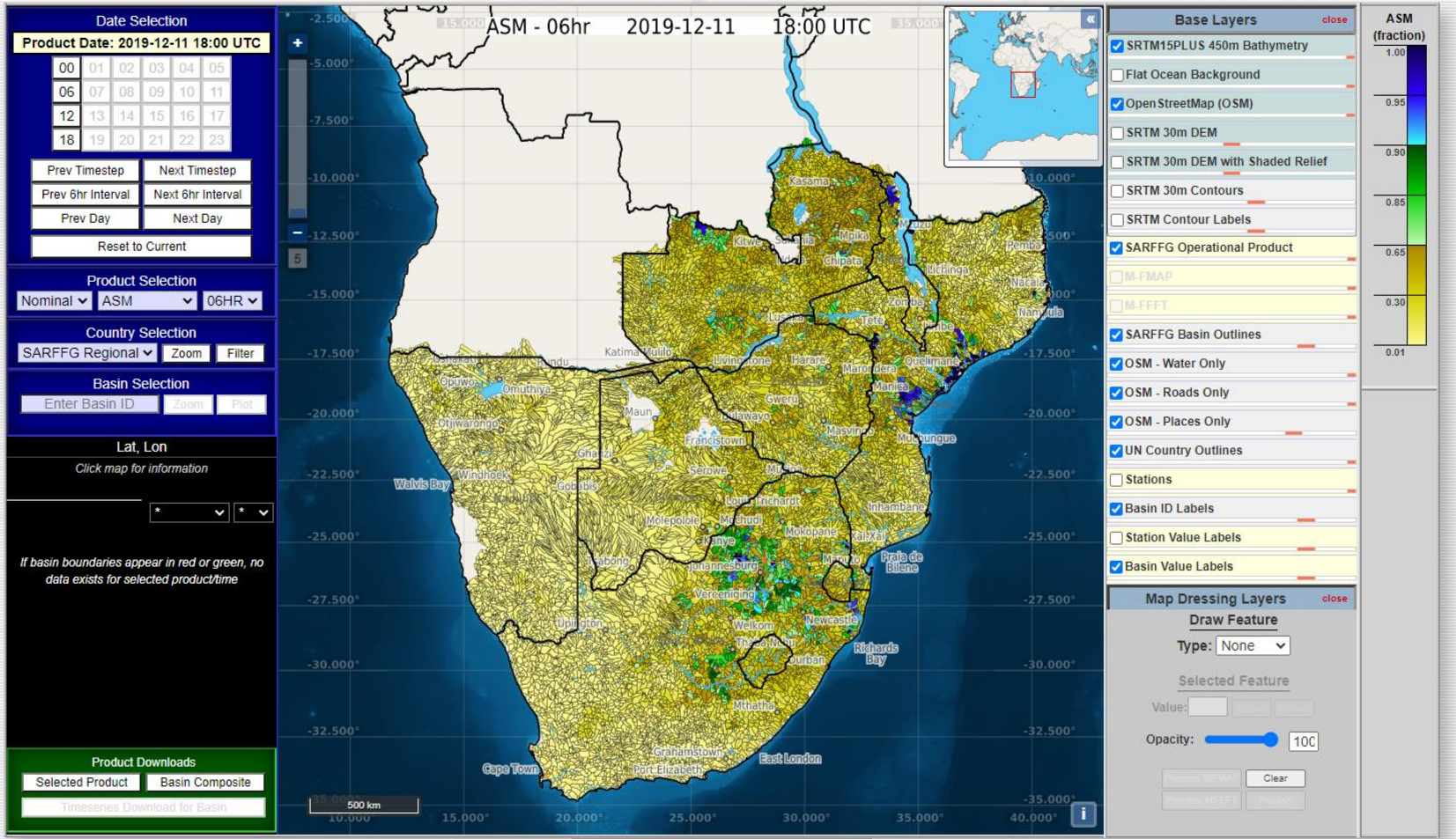


Mean Areal Precipitation (left) and Forecast Mean Areal Precipitation (right) over small delineated basins

2019-12-11 20:49:12 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 18:49:12 UTC



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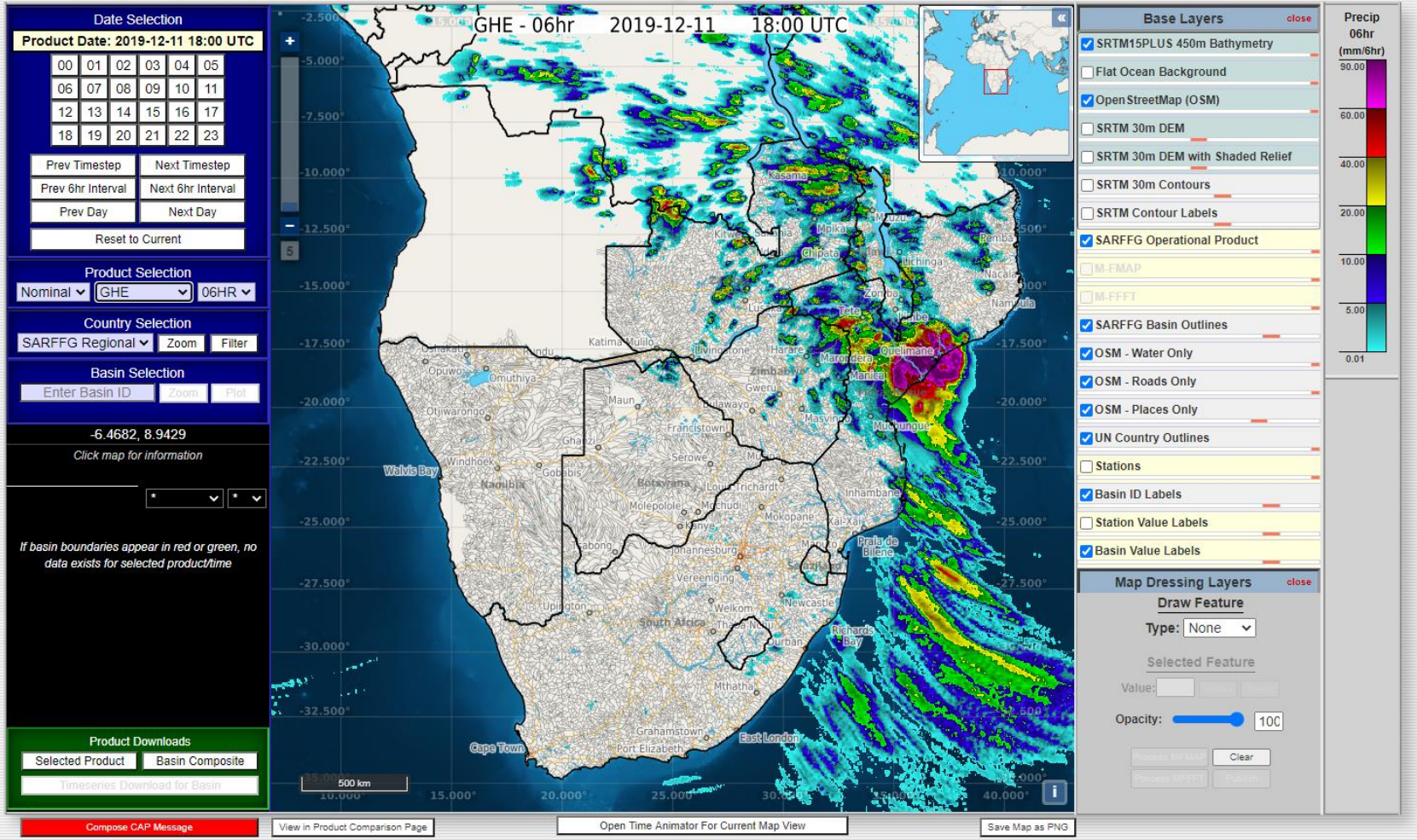
2019-12-11 20:51:17 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 18:51:17 UTC



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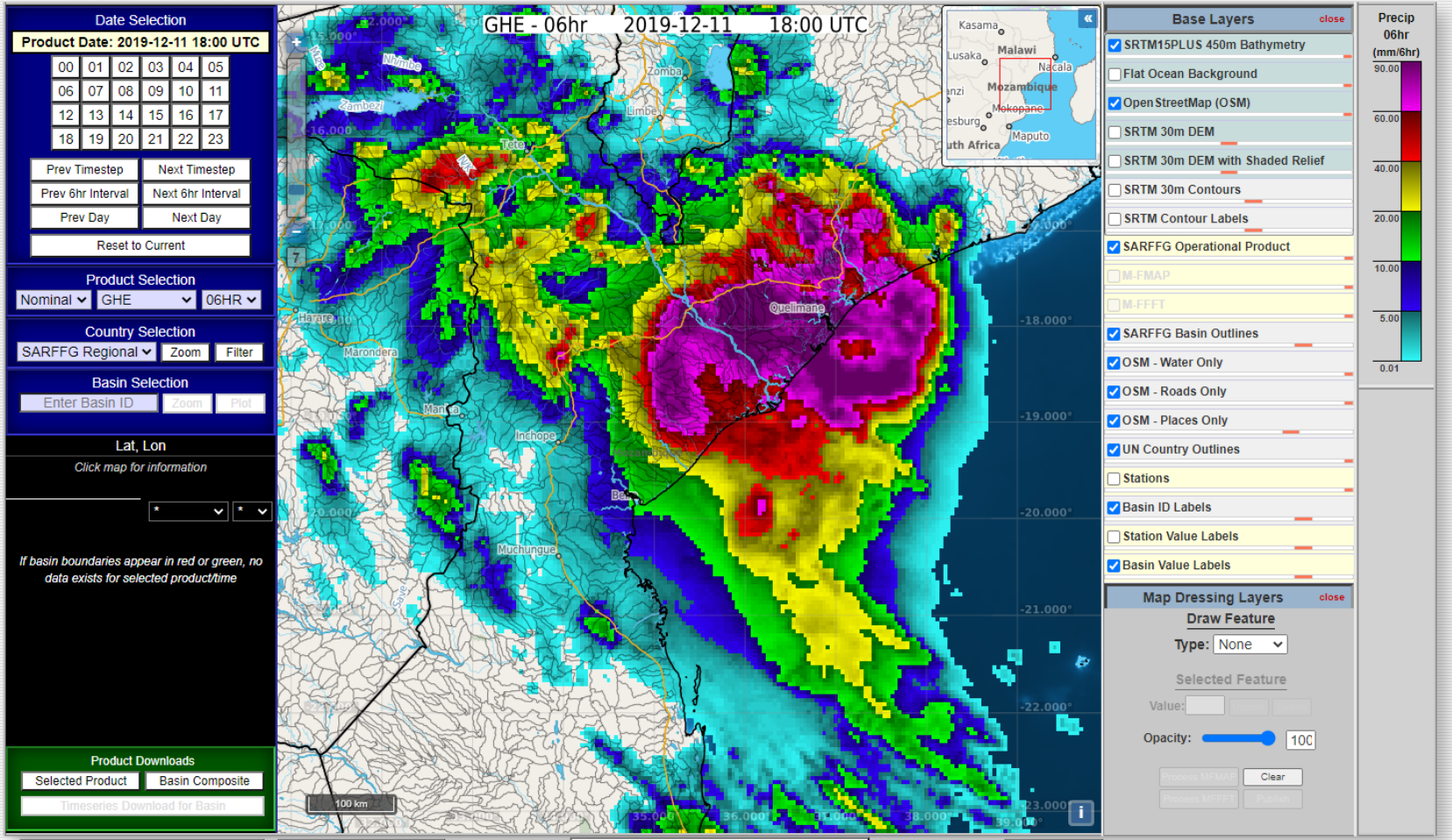
2019-12-11 20:52:42 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 18:52:42 UTC



Product Viewer | Product Comparison | FFG Plot | Basin Timeseries Downloads | Product Console | Dashboard

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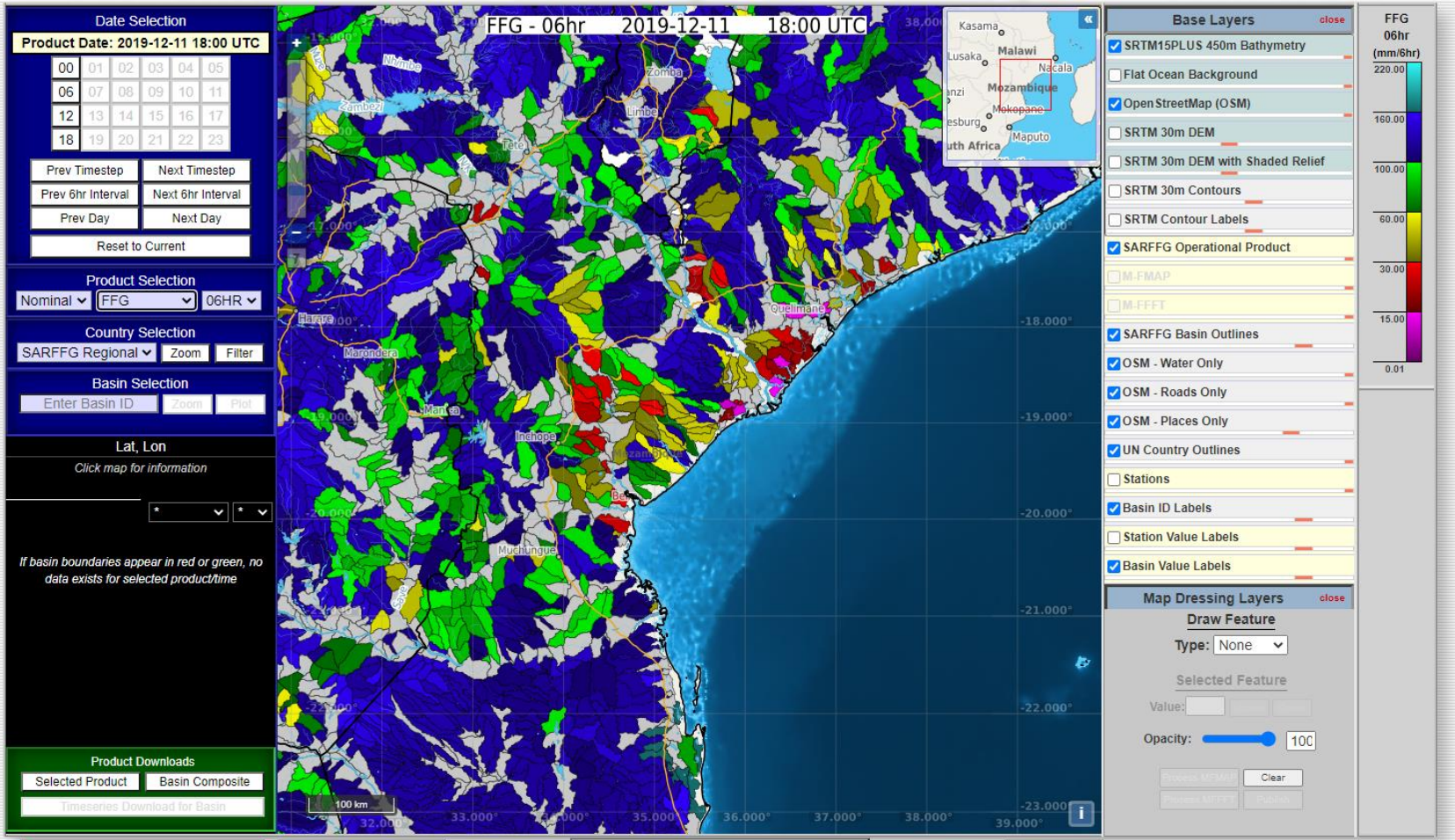
2019-12-11 20:54:18 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 18:54:18 UTC



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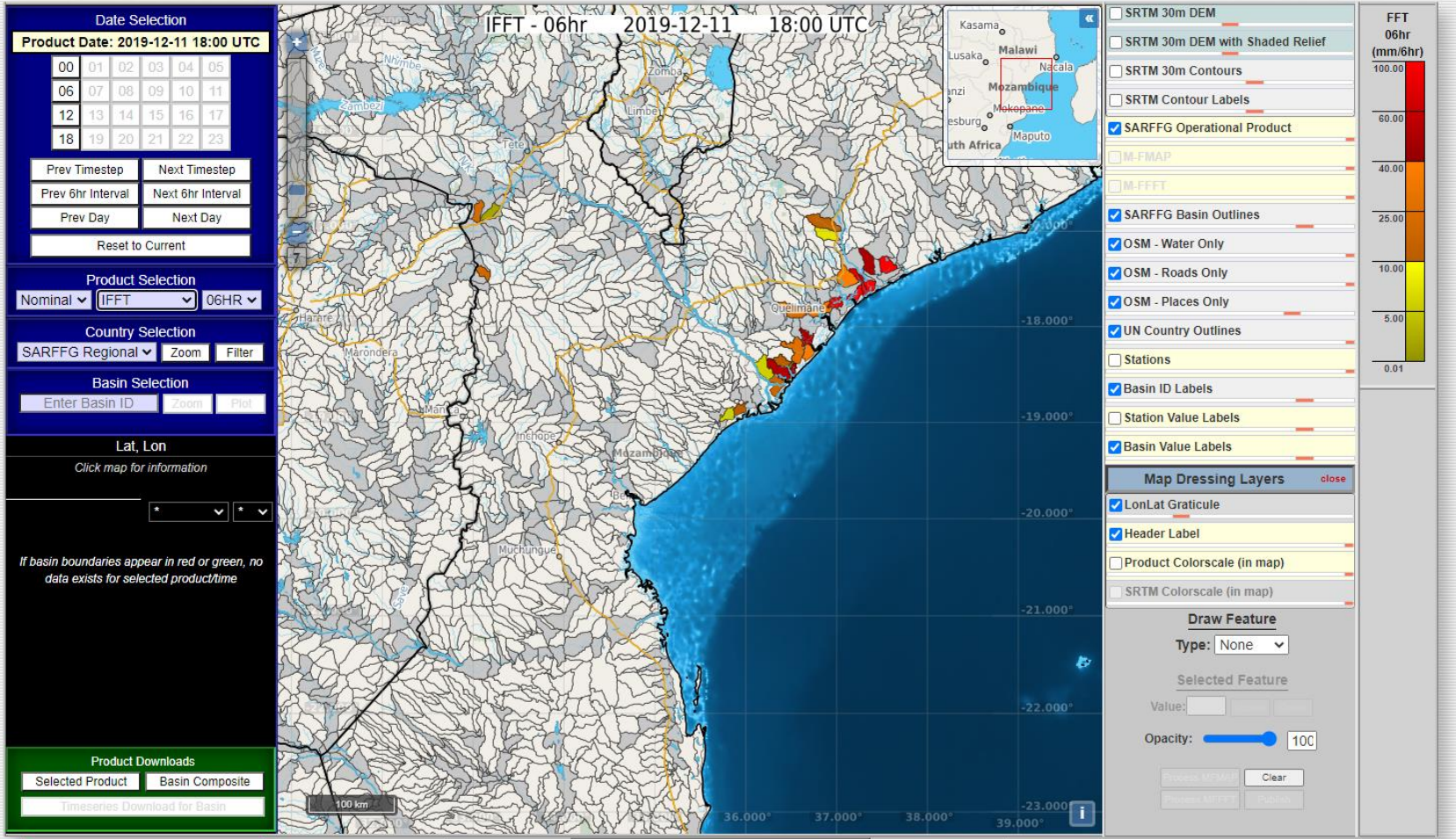
2019-12-11 20:54:42 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 18:54:42 UTC



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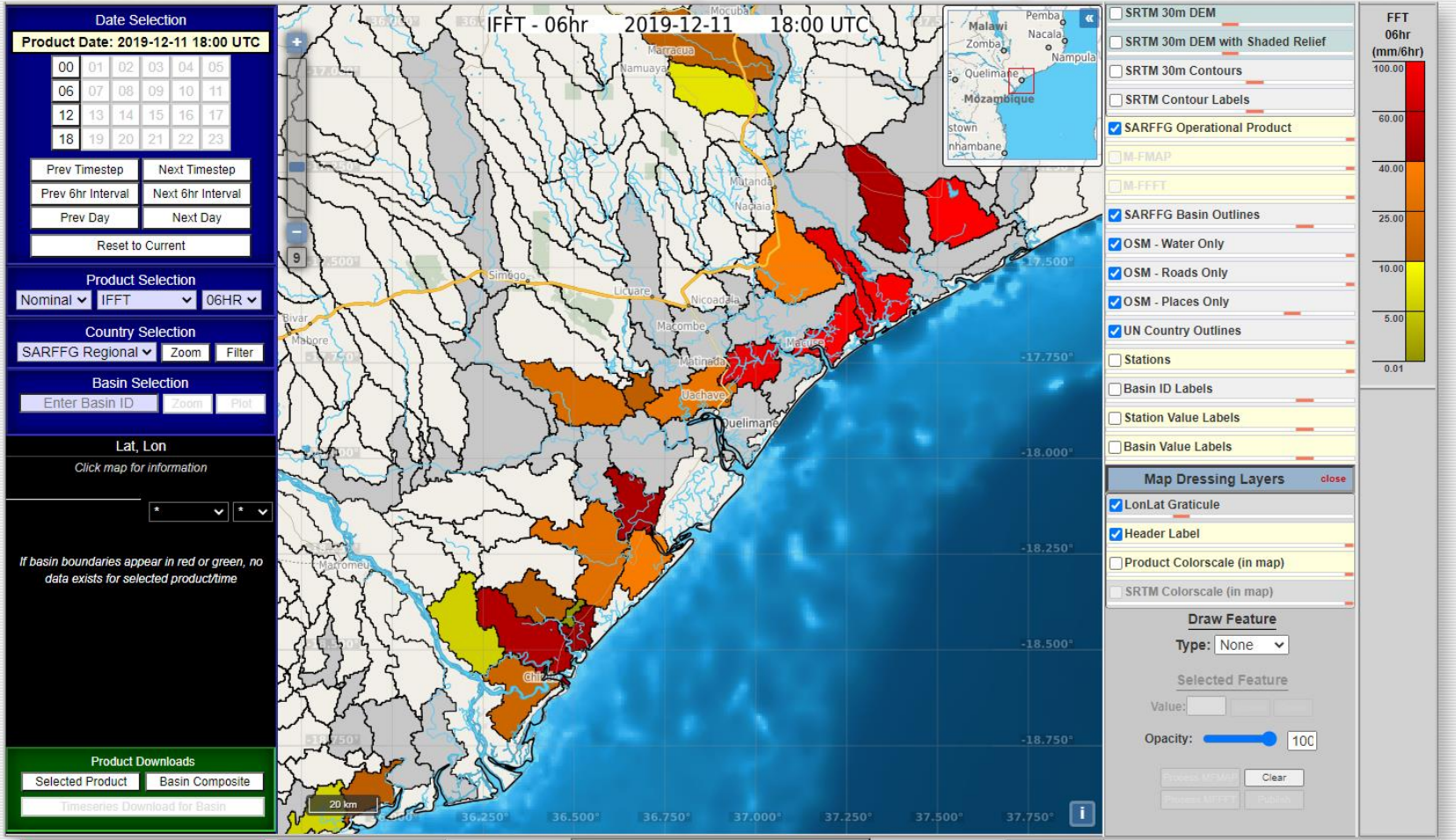
2019-12-11 20:56:37 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 18:56:37 UTC



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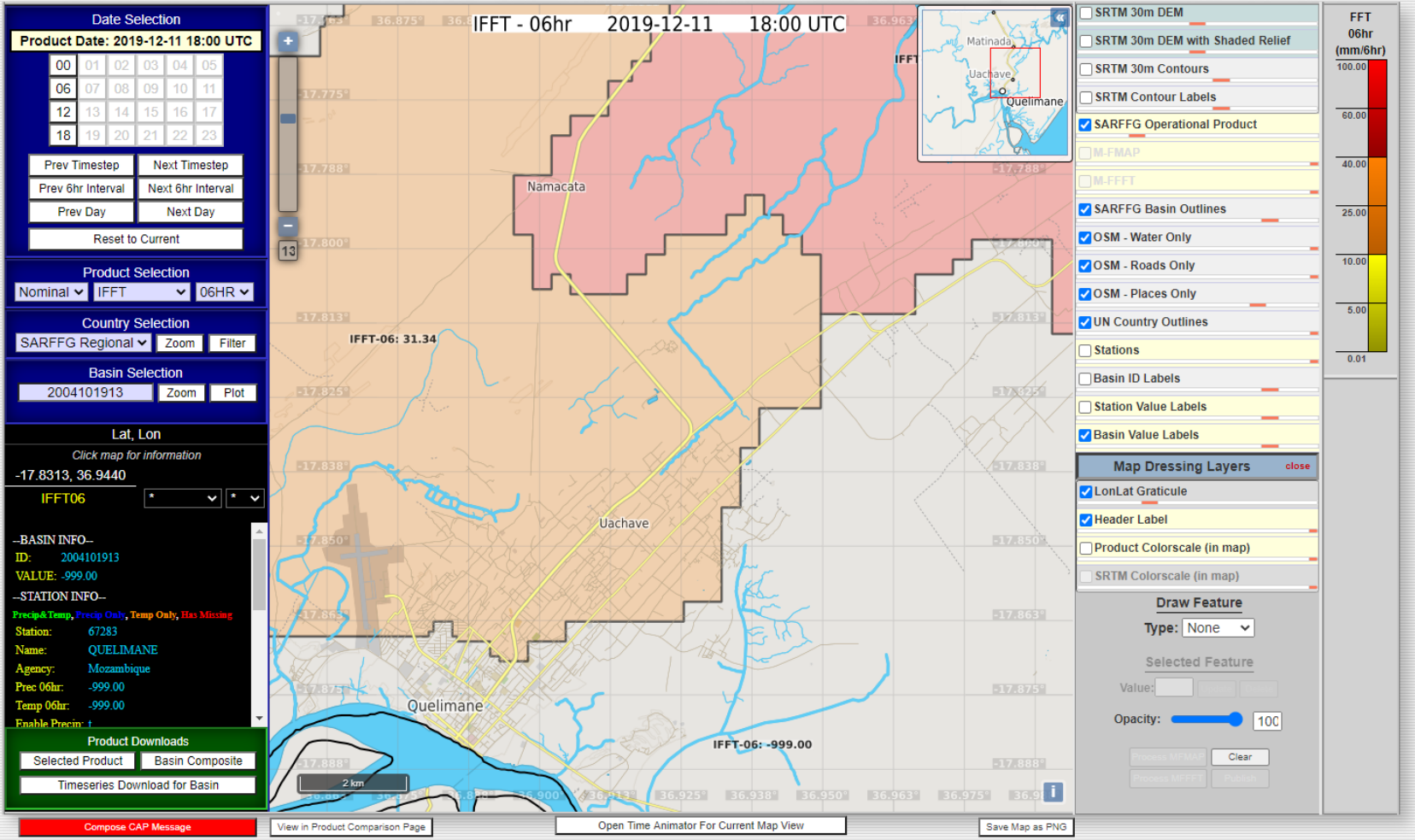
SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:01:15 UTC



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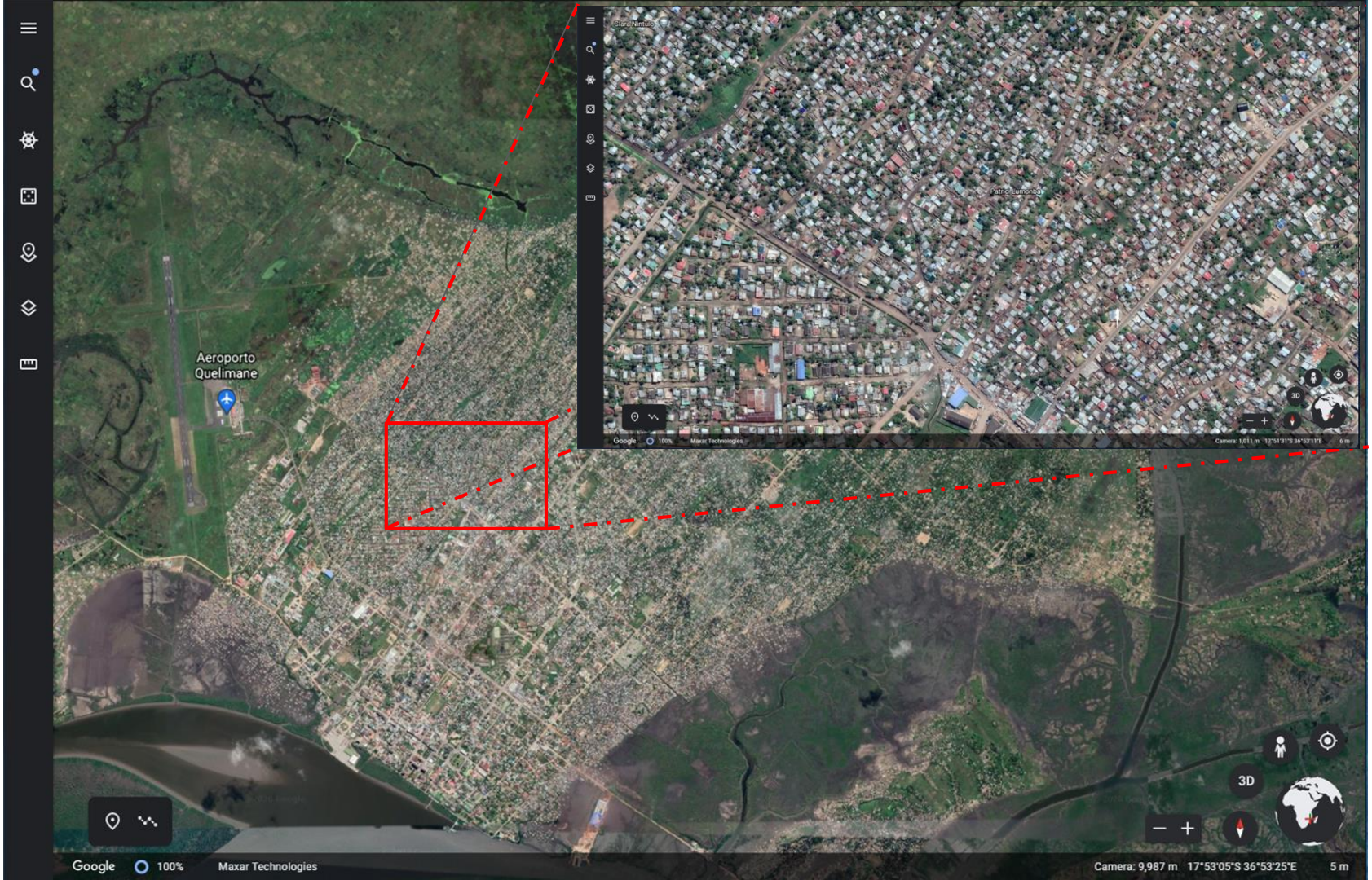
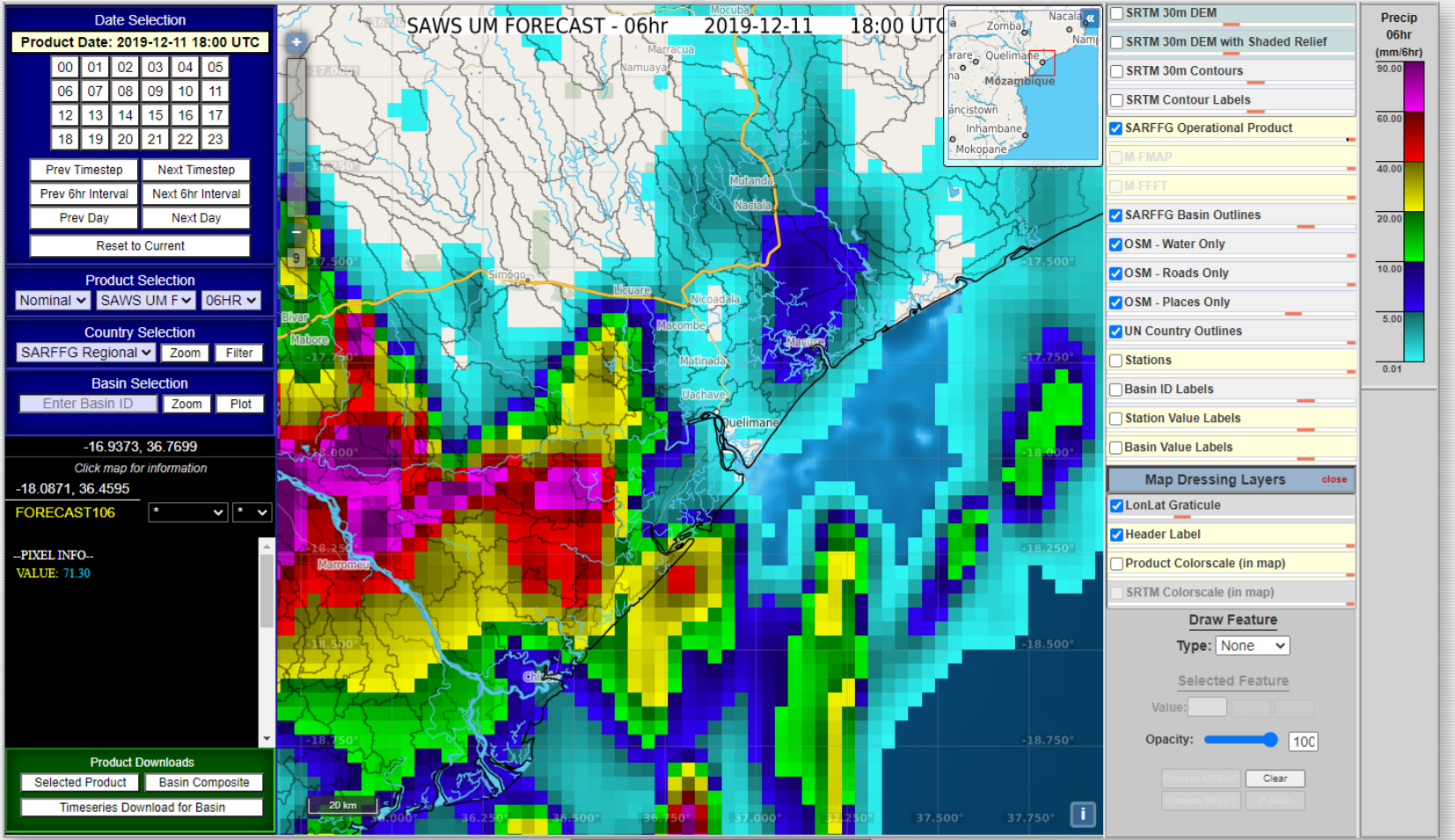

Aeroporto
Quelimane
Google
100%
Maxar Technologies
Camera: 9,987 m 17°53'05"S 36°53'25"E
5 m
3D

2019-12-11 21:07:40 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:07:40 UTC



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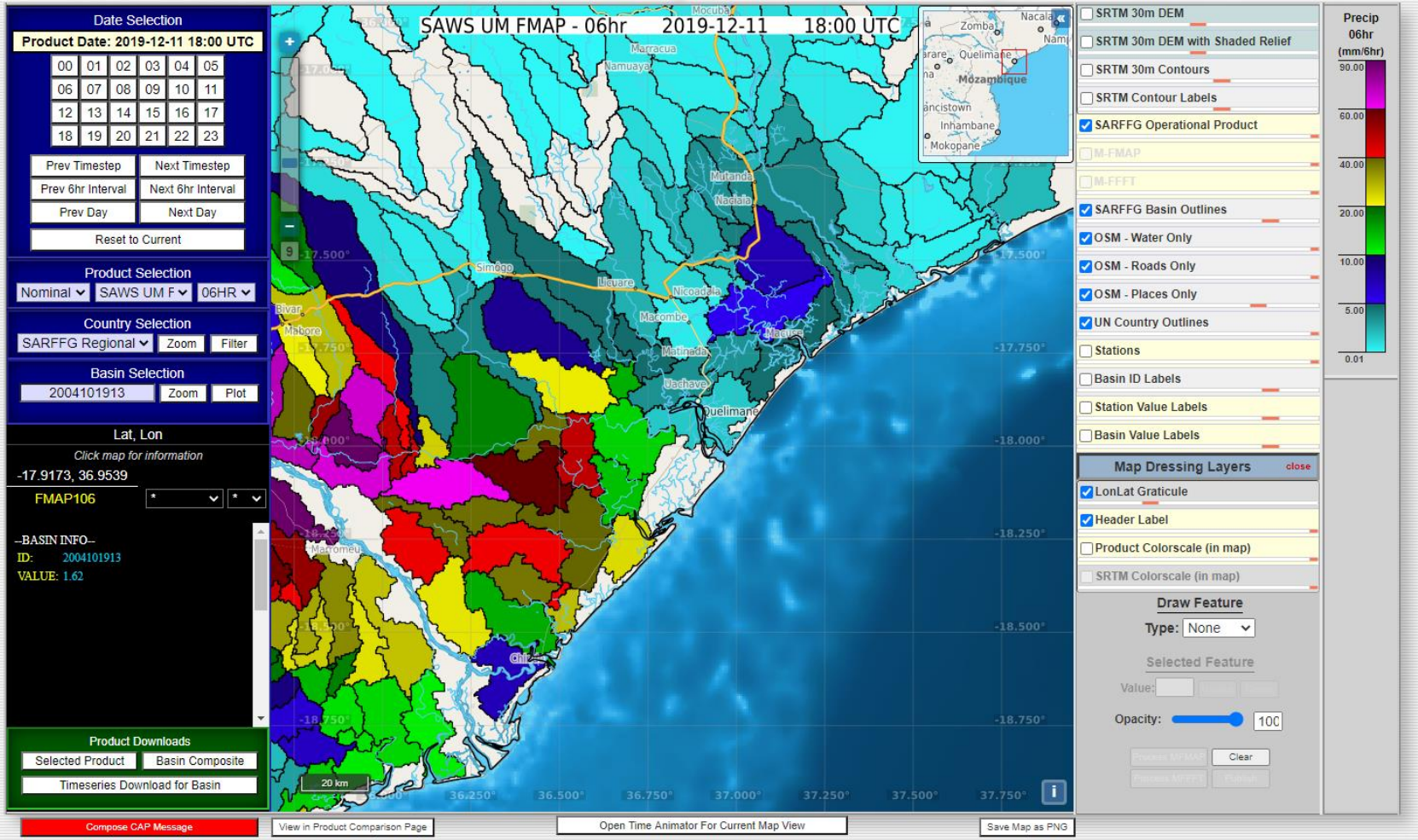
2019-12-11 21:09:39 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:09:39 UTC



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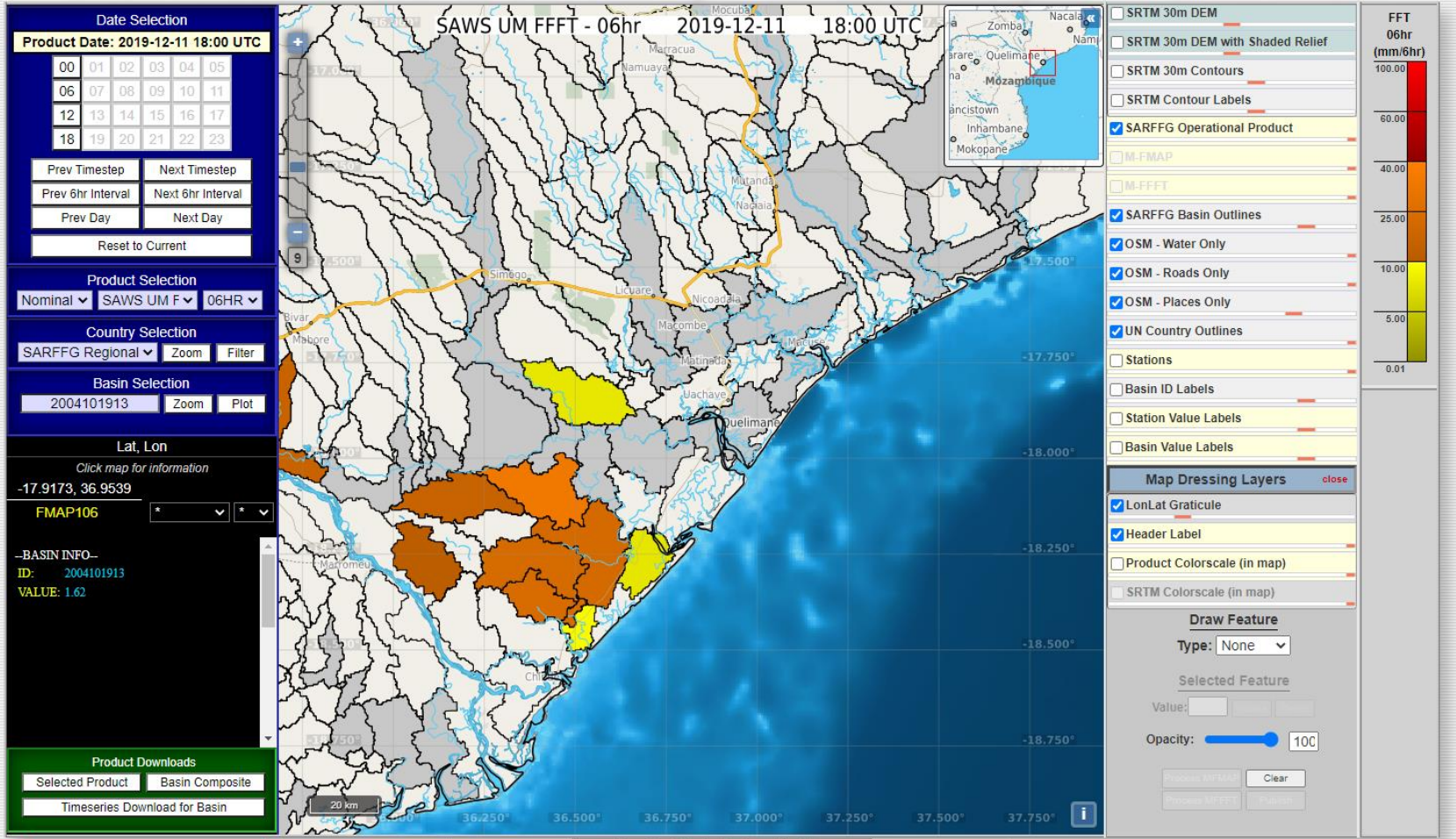
2019-12-11 21:10:56 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:10:56 UTC



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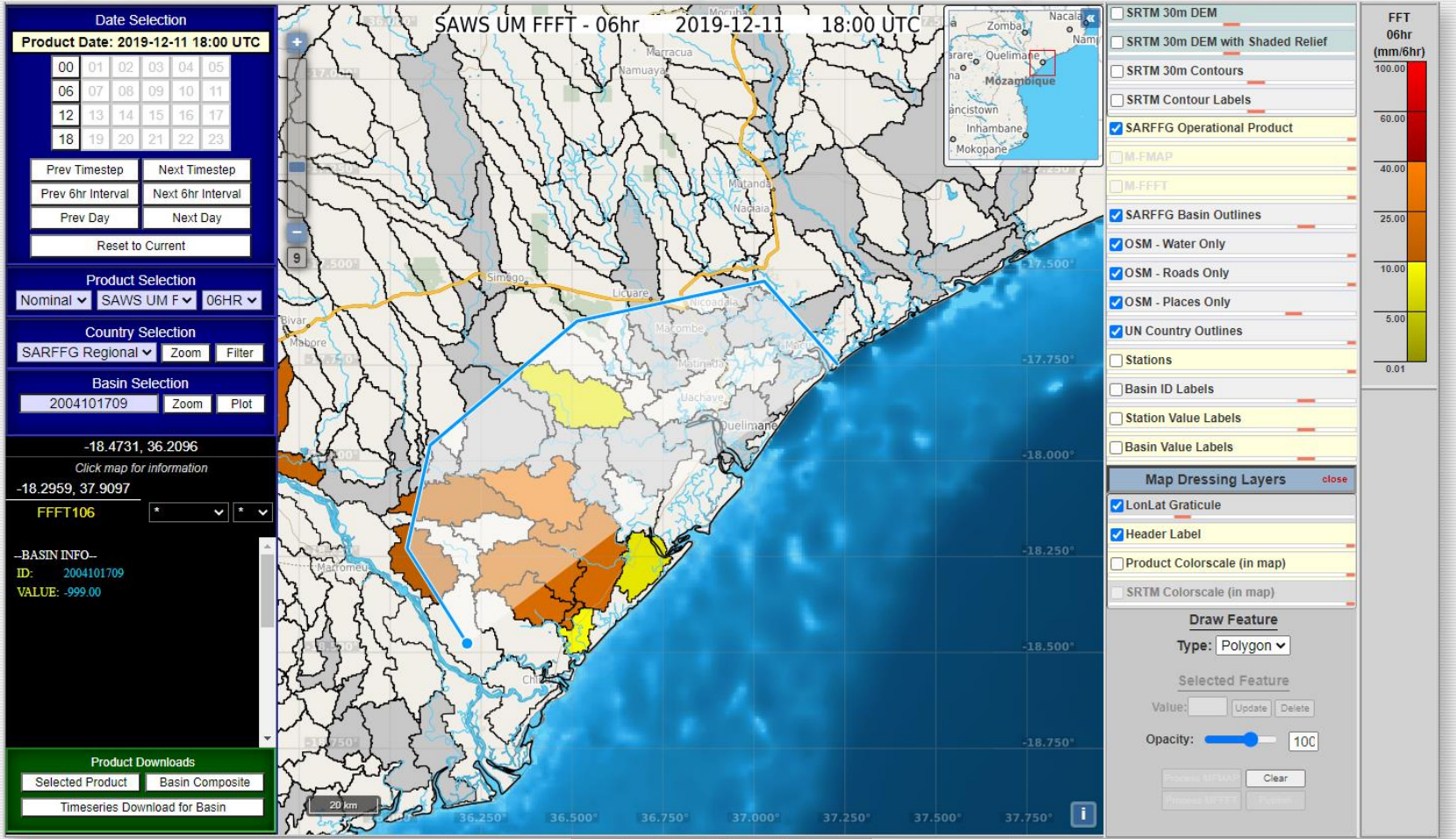
2019-12-11 21:25:57 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:25:57 UTC



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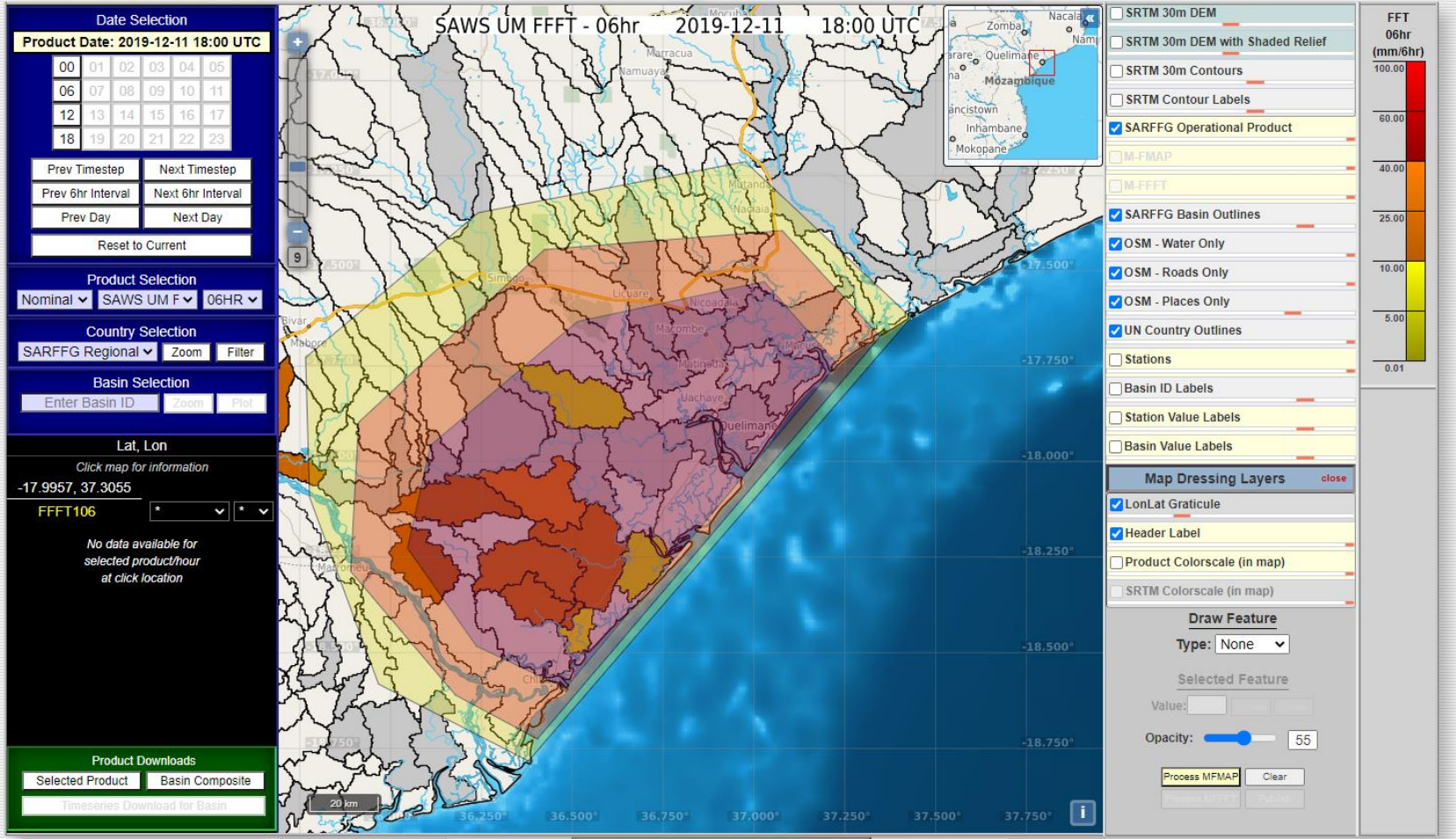
2019-12-11 21:28:52 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

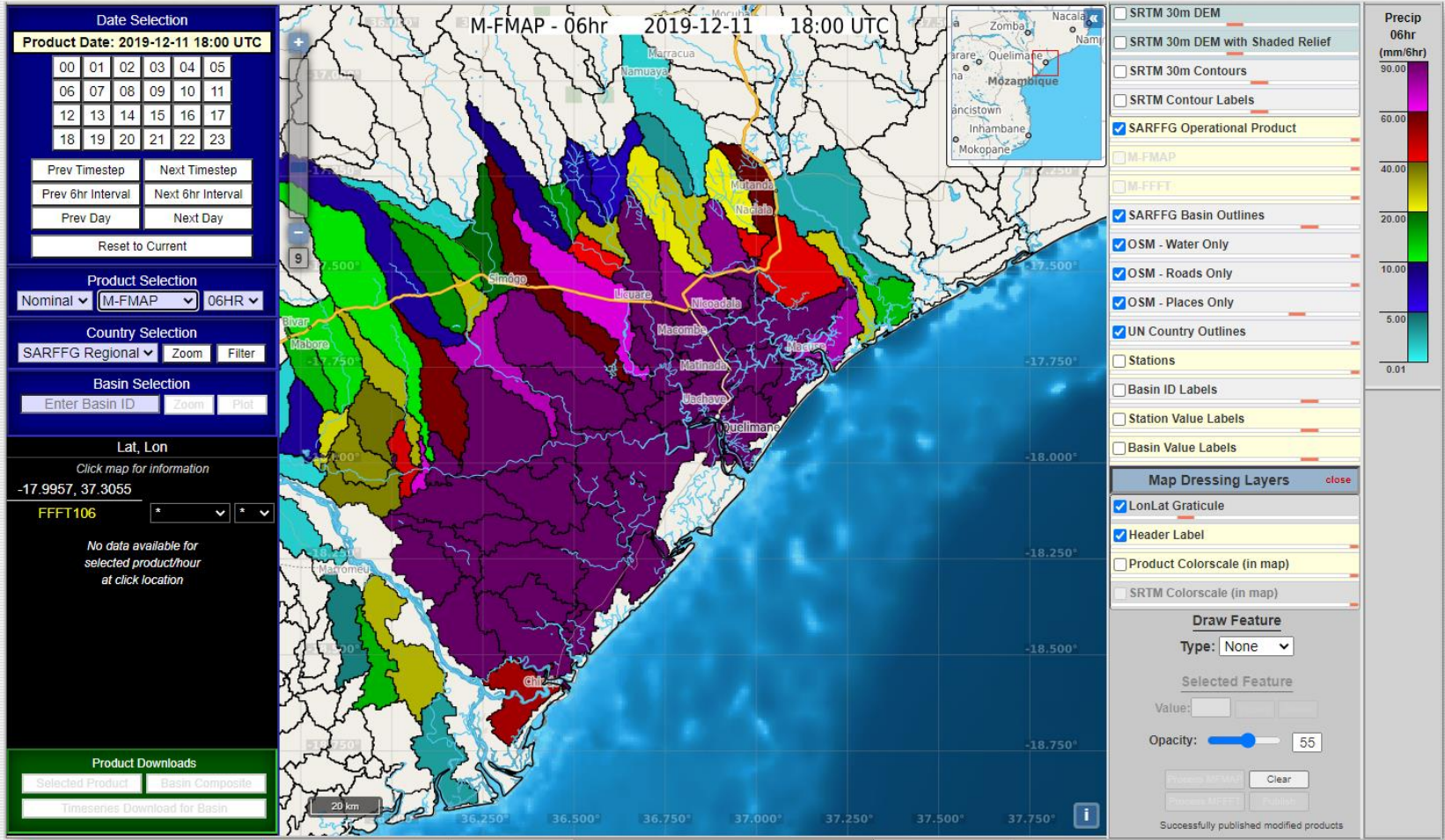
2019-12-11 19:28:52 UTC



2019-12-11 21:32:00 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:32:00 UTC



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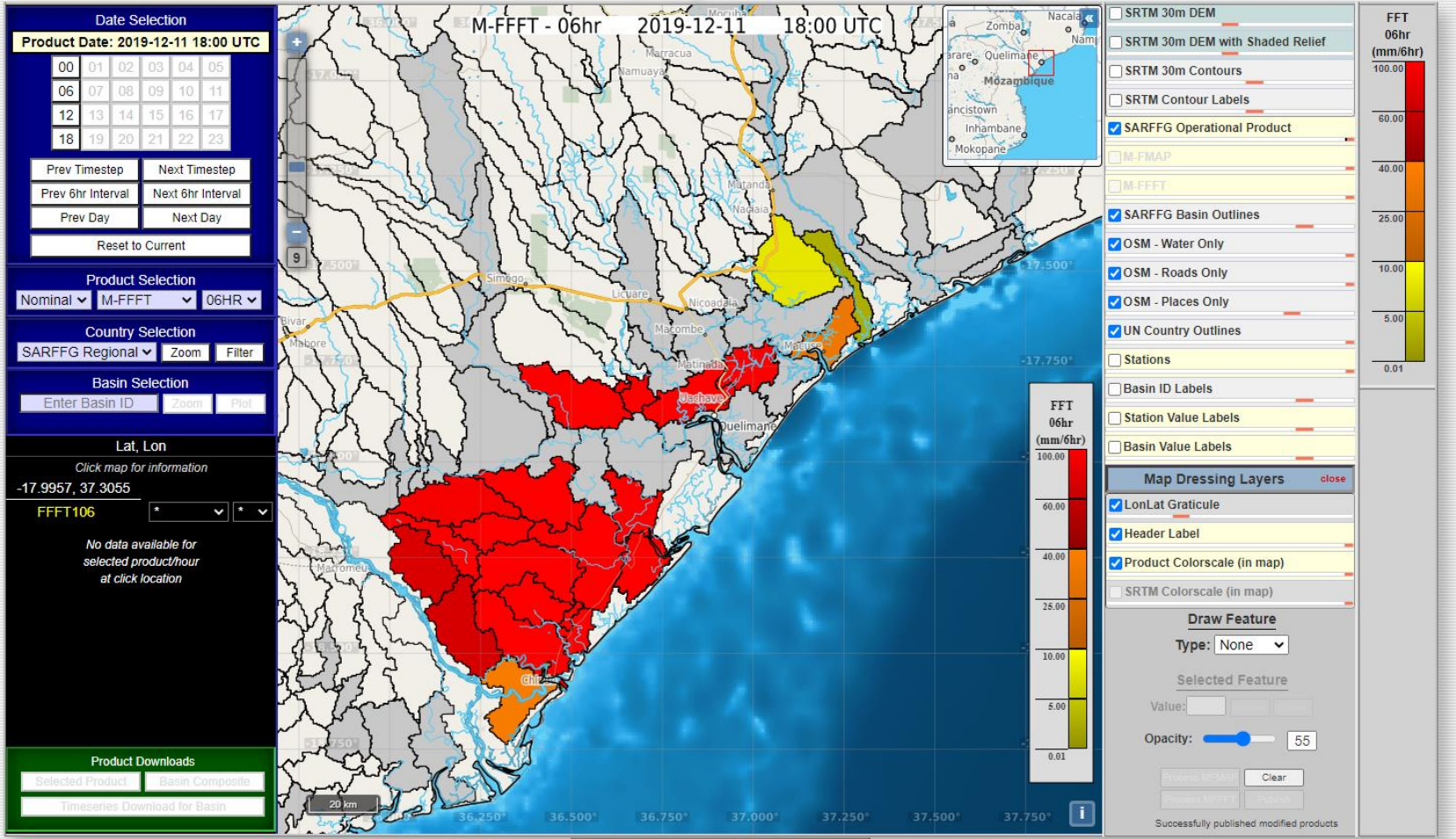
2019-12-11 21:34:46 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:34:46 UTC



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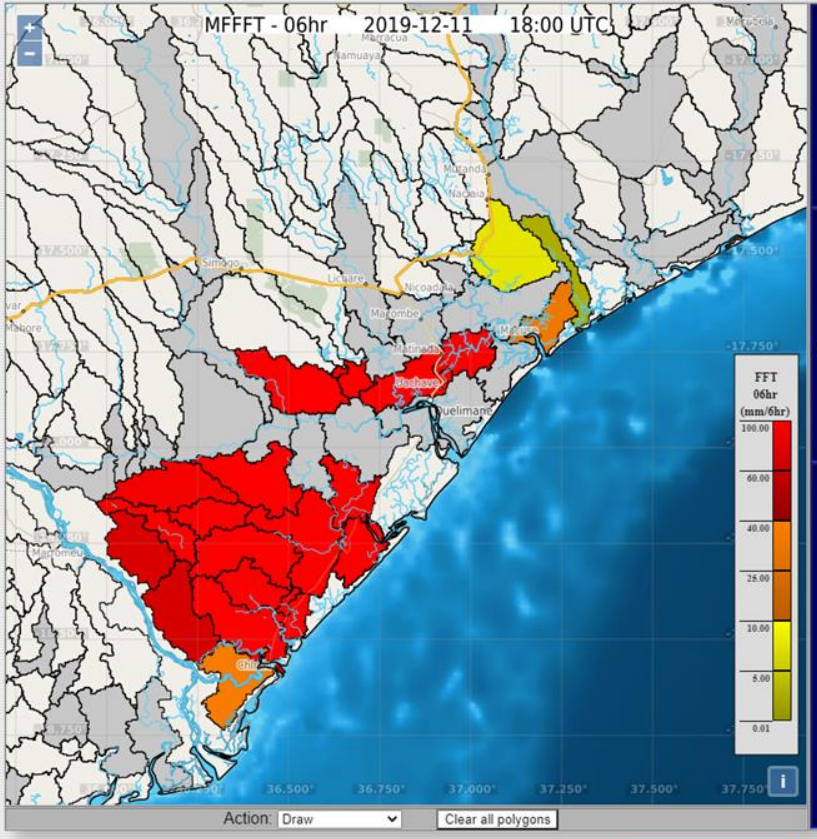
2019-12-11 21:37:59 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:37:59 UTC

CAP Alert Composer



Action: Draw | Clear all polygons

Alert Info

Message ID: kfipvp3c
Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T00:47:59-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required)

Category: Select option(s)
Response Type: Select option(s)
Urgency: Immediate
Severity: Extreme
Certainty: Observed

Include Map Image

Event Description (Optional)

Instruction (Optional)

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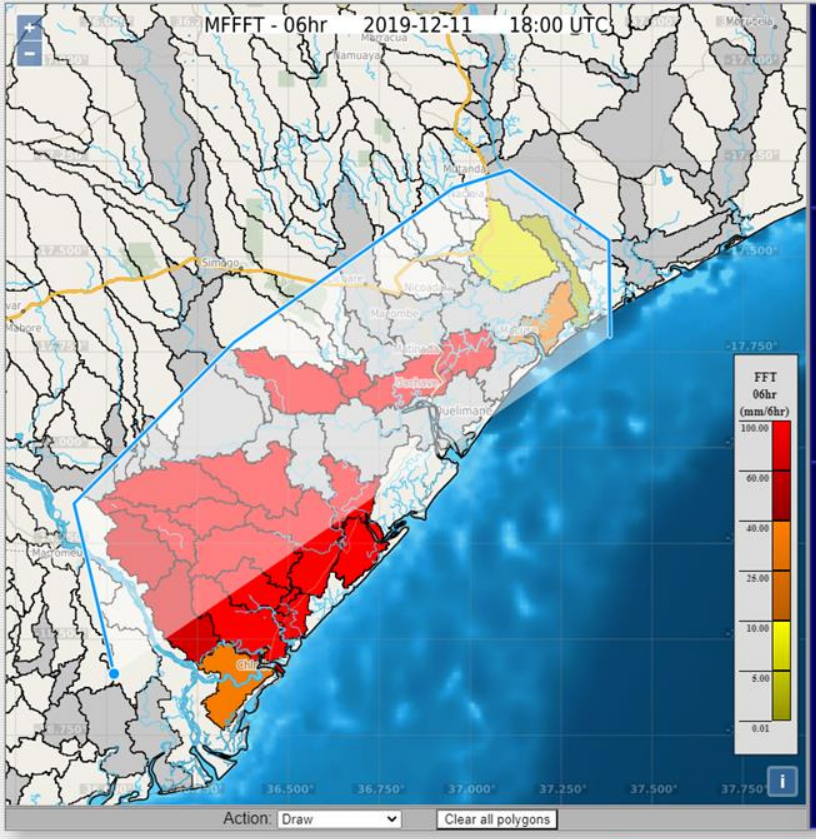
2019-12-11 21:38:35 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:38:35 UTC

CAP Alert Composer



Action: Draw | Clear all polygons

Alert Info

Message ID: kfipvp3c
Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T00:48:35-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required)

Category: Select option(s)
Response Type: Select option(s)
Urgency: Immediate
Severity: Extreme
Certainty: Observed

Include Map Image

Event Description (Optional)

Instruction (Optional)

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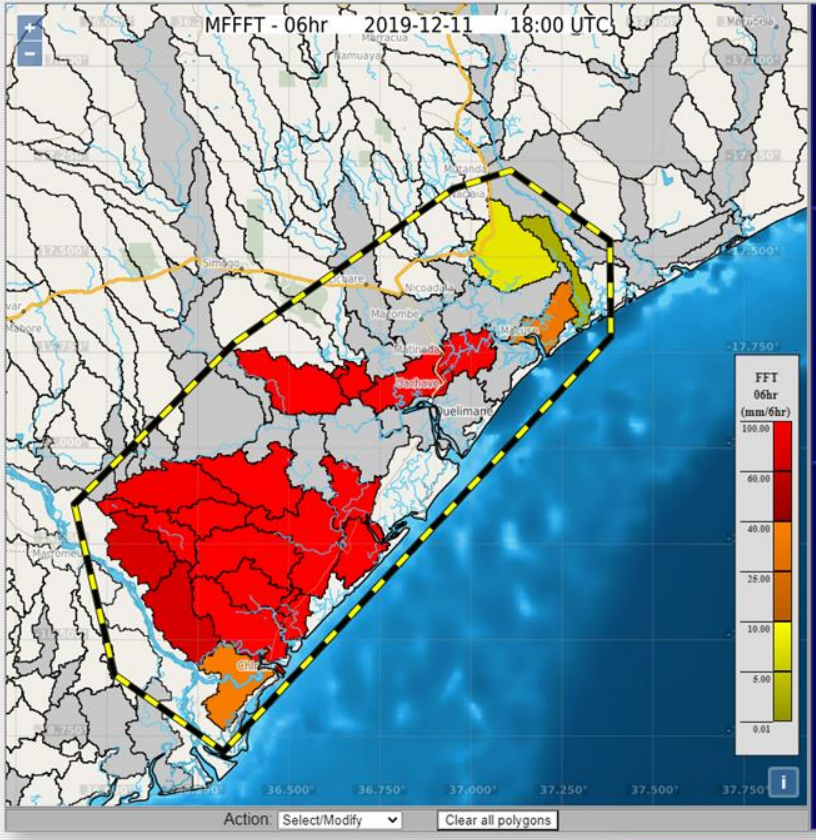
2019-12-11 21:42:50 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:42:50 UTC

CAP Alert Composer



Action: Select/Modify | Clear all polygons

Alert Info

Message ID: kfipvp3c
Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T00:52:49-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required): High Risk of Flooding

Category: Select option(s)
Response Type:
- [x] Meteorological
- [ ] Geophysical
- [ ] Safety
- [ ] Security
- [ ] Rescue
- [ ] Fire
- [ ] Health
- [ ] Environmental
- [ ] Transport
- [ ] Infrastructure (Non-Transport)
- [ ] CBRNE
- [ ] Other

Urgency:
Severity:
Certainty:

Incl

Event Description (Optional)

Instruction (Optional)

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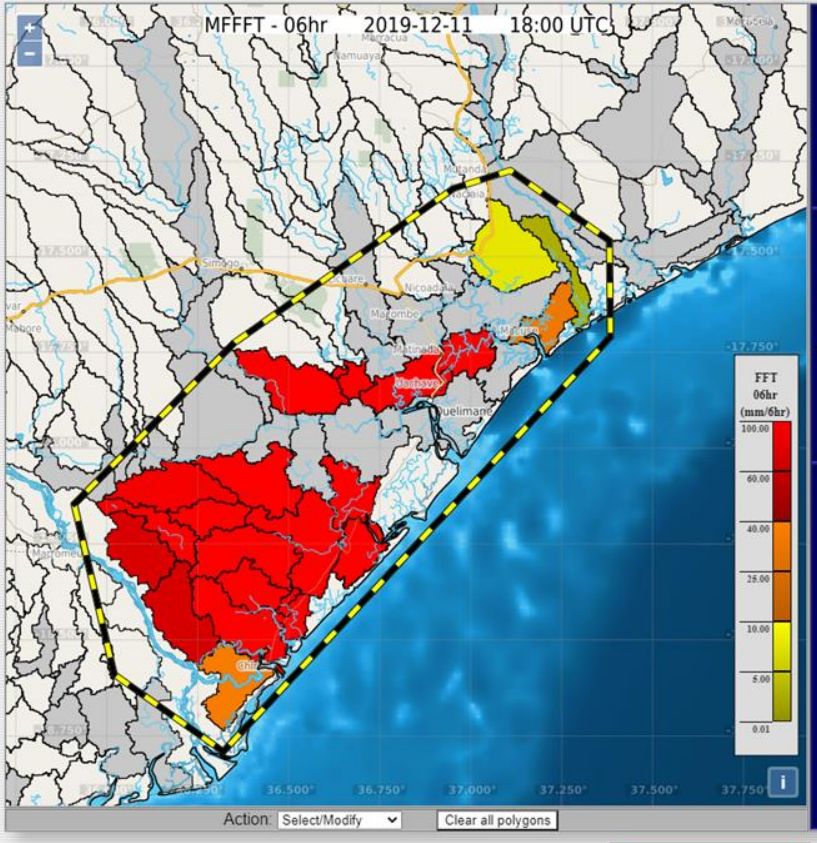
2019-12-11 21:43:20 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:43:20 UTC

CAP Alert Composer



Alert Info

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Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T00:53:20-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required): High Risk of Flooding
Category: Select option(s)
Response Type: Select option(s)
Urgency: Expected
Severity: Severe
Certainty: Likely

Observed
Likely
Possible
Unlikely
Unknown

Include Map Image

Event Description (Optional)

Instruction (Optional)

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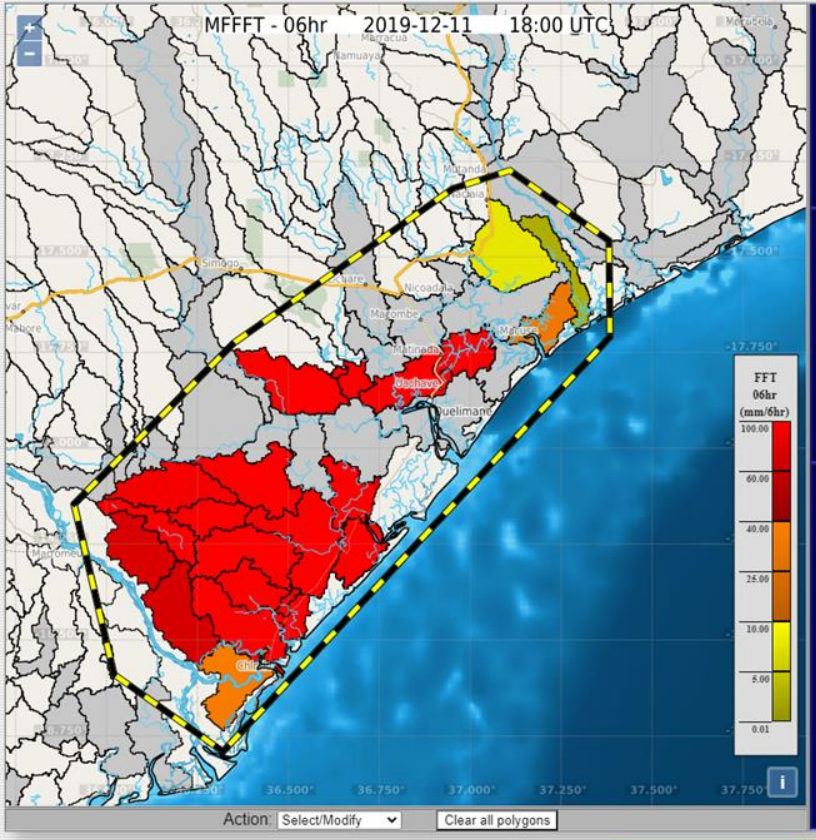
2019-12-11 21:48:42 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:48:42 UTC

CAP Alert Composer



Alert Info

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Sender: cap_sample@hrcwater.org

Time Sent: 2019-12-12T00:58:42-00:00

Message Type: Alert

Status: Actual

Scope: Public

Event Info

Event Type (Required): High Risk of Flooding

Category: Select option(s)

Response Type: Select option(s)

Urgency: Expected

Severity: Severe

Certainty: Likely

Include Map Image

Event Description (Optional)

On Wednesday, December 11, 2019 <Agency> issued a flash flood warning for the south-eastern region of the Zambezia province. This warning includes, but is not limited to, the region from the city of Quelimane down to the region of the city of Chinde.

This warning is in effect from 8:00pm on December 11th, 2019 CAT until 2:00am on December 12th, 2019 CAT.

Heavy rains will likely lead to flooding, with likely extensive damage to houses and property in the area, as well as the potential for loss of life.

Instruction (Optional)

If you are in the warning area, avoid low-lying areas or move to higher ground immediately. Residents living along streams and creeks should take immediate precautions to protect life and property. Do not attempt to cross swiftly flowing waters or waters of unknown depth.

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2019-12-11 21:51:06 SAST

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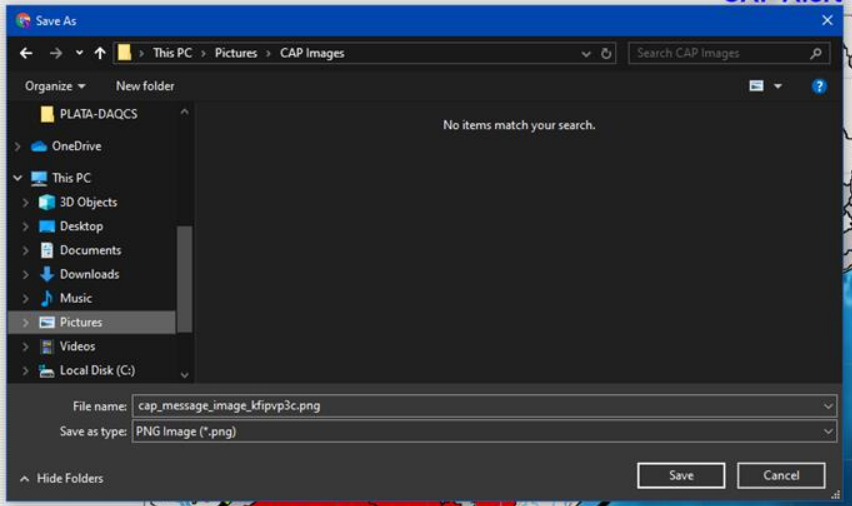
2019-12-11 19:51:06 UTC

CAP Alert Composer



Action: Select/Modify | Clear all polygons

Alert Info

Message ID: kfipvp3c
Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T01:01:05-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required): High Risk of Flooding
Category: Select option(s)
Response Type: Select option(s)
Urgency: Expected
Severity: Severe
Certainty: Likely

Resource Info

Resource Description (Required)

Resource URI: https://www.hrcwater.org/images/cap_mess

Image PNG has been placed at above location

Cancel Image Attachment

Event Description (Optional)

On Wednesday, December 11, 2019 <Agency> issued a flash flood warning for the south-eastern region of the Zambezia province. This warning includes, but is not limited to, the region from the city of Quelimane down to the region of the city of Chinde.

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2019-12-11 21:52:42 SAST

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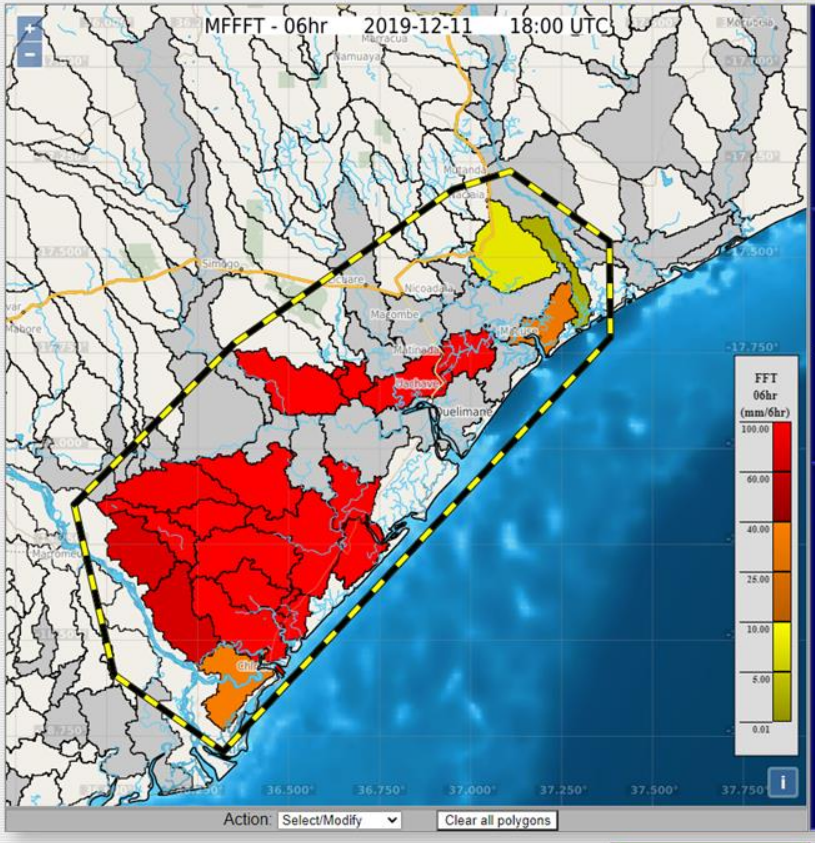
2019-12-11 19:52:42 UTC

CAP Alert Composer



Alert Info

Message ID: kfipvp3c
Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T01:02:42-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required): High Risk of Flooding
Category: Select option(s)
Response Type: Select option(s)
Urgency: Expected
Severity: Severe
Certainty: Likely

Resource Info

Resource Description (Required):
Attached image shows Flash Flood threat as depicted in the SARFFG web interface

Resource URI: https://www.hrcwater.org/images/cap_mess

Image PNG has been placed at above location

Cancel Image Attachment

Event Description (Optional)

On Wednesday, December 11, 2019 <Agency> issued a flash flood warning for the south-eastern region of the Zambezia province. This warning includes, but is not limited to, the region from the city of Quelimane down to the region of the city of Chinde.

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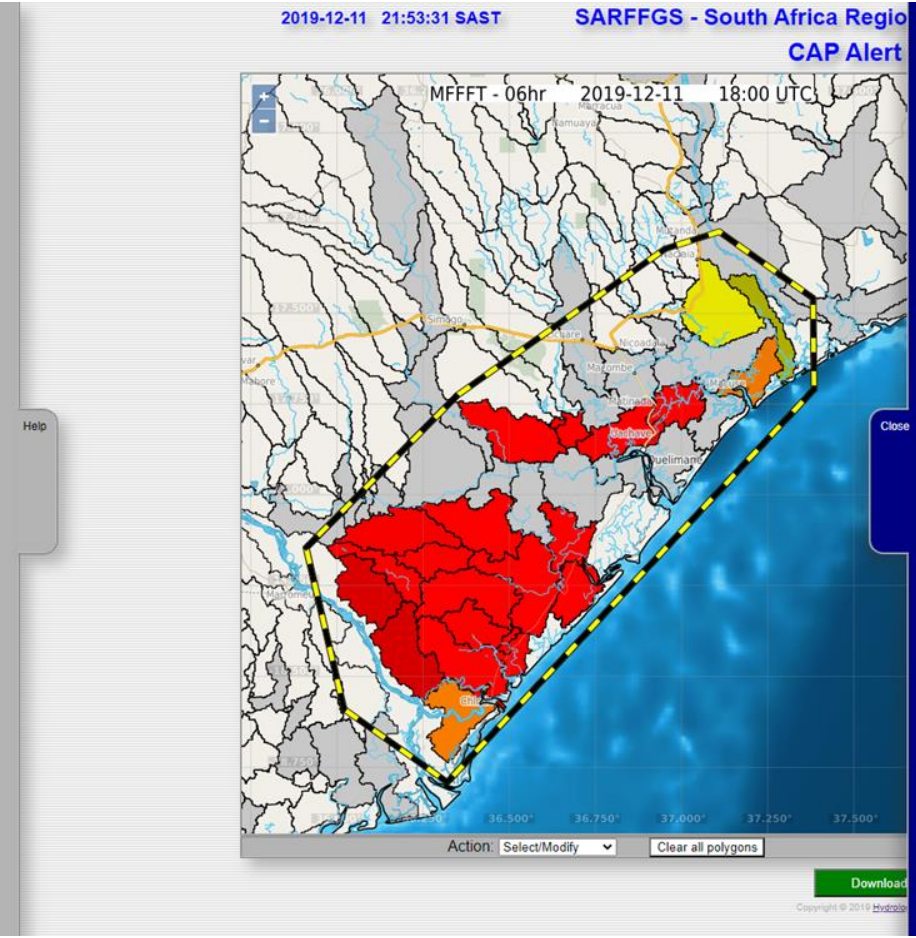

Raw XML Message Content | Copy XML to clipboard | Show XML Preview | Show Validator

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  <msgType>Alert</msgType>
  <scope>Public</scope>
  <info>
    <category>Met</category>
    <event>High Risk of Flooding</event>
    <urgency>Expected</urgency>
    <severity>Severe</severity>
    <certainty>Likely</certainty>
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of the Zambezia province. This warning in                    e city of Quelimane down to the
region of the city of Chinde.

This warning is in effect from 8:00pm on                     12th, 2019 CAT.

Heavy rains will likely lead to flooding, with likely extensive damage to houses and property in the area, as well as the
potential for loss of life.</description>
    <resource>
      <resourceDesc>Attached image shows Flash Flood threat as depicted in the SARFFG web interface</resourceDesc>
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      <areaDesc>Southeastern Zambezia province, stretching from the north of Quelimane to the south of Chinde </areaDesc>
      <polygon>-17.70944457,37.38372803 -17.45809266,37.38098145 -17.27459606,37.10906982 -17.32179844,36.95251465
-17.72514243,36.35101318 -18.14585177,35.91156006 -18.58898235,36.02142334 -18.78931755,36.32080078
```

Copied to Clipboard

CAP Message Validator (https://cap-validator.appspot.com/)

google.org Common Alerting Protocol Validator

The Common Alerting Protocol validator is a free service that checks the syntax of CAP XML messages and Atom, RSS and EDXL-DE feeds of CAP messages. It supports CAP v1.0, v1.1 and v1.2.

Input feed

Try these examples:

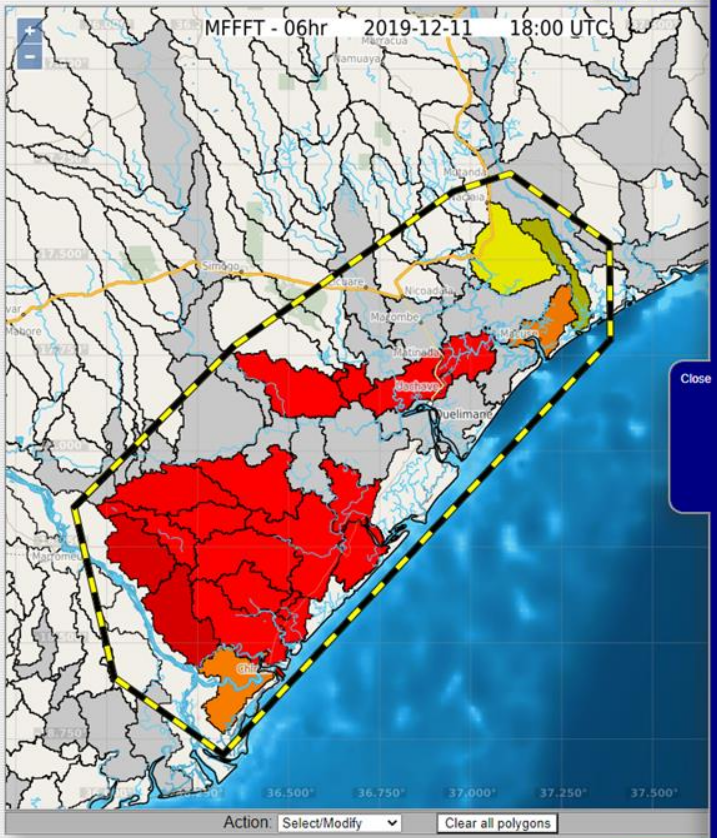
CAP 1.2 Severe Thunderstorm Warning
CAP 1.2 Homeland Security Advisory
CAP 1.1 Earthquake Atom feed
CAP 1.1 Amber Alert RSS feed
CAP 1.2 Rural Fire EDXL-DE feed

Subscribe to feed validation

2019-12-11 21:54:41 SAST

SARFFGS - South Africa Regio

CAP Alert



Download

Help

Close

CAP Message Validator (https://cap-validator.appspot.com/)

Show XML Preview Show Validator

google.org Common Alerting Protocol Validator

The Common Alerting Protocol validator is a free service that checks the syntax of CAP XML messages and Atom, RSS and EDXL-DE feeds of CAP messages. It supports CAP v1.0, v1.1 and v1.2.

Input feed

```
  <status>Actual</status>
  <msgType>Alert</msgType>
  <scope>Public</scope>
  <info>
    <category>Met</category>
    <event>High Risk of Flooding</event>
    <urgency>Expected</urgency>
    <severity>Severe</severity>
    <certainty>Likely</certainty>
    <description>On Wednesday, December 11, 2019 &lt;Agency&gt; issued a
flash flood warning for the south-eastern region of the Zambezia province.
This warning includes, but is not limited to, the region from the city of
Quelimane down to the region of the city of Chinde.

This warning is in effect from 8:00pm on December 11th, 2019 CAT until
2:00am on December 12th, 2019 CAT.

Heavy rains will likely lead to flooding, with likely extensive damage to
houses and property in the area, as well as the potential for loss of life.
</description>
    <resource>
      <resourceDesc>Attached image shows Flash Flood threat as depicted in
the SARFFG web interface</resourceDesc>
      <mimeType>image/png</mimeType>

<uri>https://www.hrcwater.org/images/cap_message_image_kfipvp3c.png</uri>
    </resource>
    <area>
```

Type an alert or upload a file.

(Optional) Validate against common CAP profiles:

- ☐ US IPAWS Profile v1.0
- ☐ CAP Canadian Profile v1.0
- ☐ CAP Australian Profile v3.0, Committee Specification 02
- ☐ Google Public Alerts CAP v1.0

Validate

Try these examples:

- CAP 1.2 Severe Thunderstorm Warning
- CAP 1.2 Homeland Security Advisory
- CAP 1.1 Earthquake Atom feed
- CAP 1.1 Amber Alert RSS feed
- CAP 1.2 Rural Fire EDXL-DE feed

Subscribe to feed validation results

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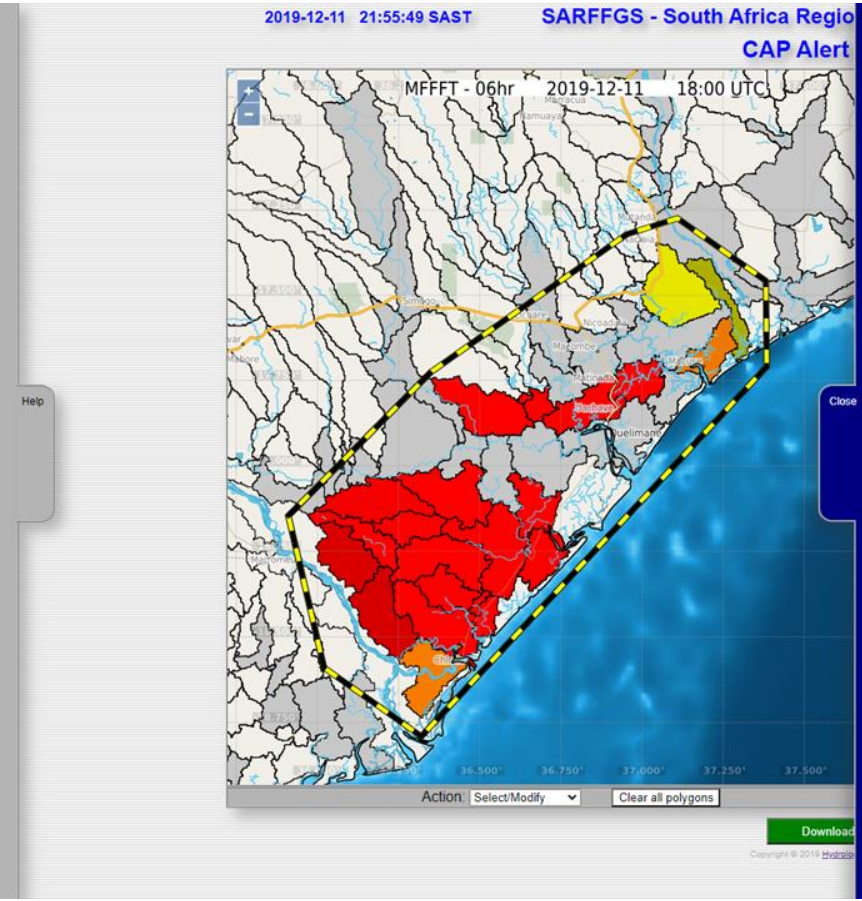
Powered by Google App Engine



CAP Message Validator (https://cap-validator.appspot.com/)

Show XML Preview Show Validator

(Optional) Validate against common CAP profiles:

- [ ] US IPAWS Profile v1.0
- [ ] CAP Canadian Profile v1.0
- [ ] CAP Australian Profile v3.0 Committee Specification 02
- [ ] Google Public Alerts CAP v1.0

Validate

Result

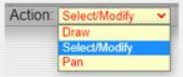
Valid!

File

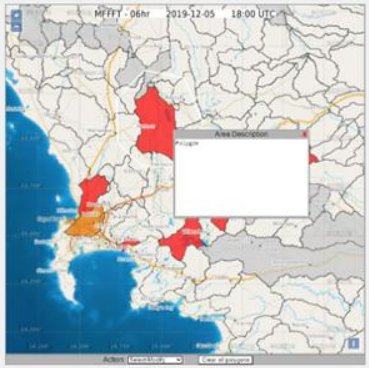
```
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.2">
  <identifier>kfipvp3c</identifier>
  <sender>cap_sample@hrcwater.org</sender>
  <sent>2019-12-12T01:03:15-00:00</sent>
  <status>Actual</status>
  <msgType>Alert</msgType>
  <scope>Public</scope>
```

Adding Area Descriptions to Polygons

To edit an area description to a polygon, select the "Select/Modify" option from the "Action" dropdown menu, found below the map:



Then, simply click on the polygon you wish to edit the area description for. The selected polygon will turn white and a text box labeled "Area Description" will appear, containing the default placeholder text. Any changes made to the text in this box will be automatically saved as the Area Description for that polygon.



Modifying Polygons

To modify a polygon, select the "Select/Modify" option from the "Action" dropdown menu, found below the map:

ca Region Flash Flood Guidance System 2019-12-11 19:56:11 UTC

AP Alert Composer

Close

FFT 06hr (mm/6hr)
100.00
60.00
40.00
25.00
10.00
5.00
0.01

37.500° 37.750°

Alert Info

Message ID: kfipvp3c
Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T01:06:11-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required)
High Risk of Flooding

Category: Select option(s)
Response Type: Select option(s)
Urgency: Expected
Severity: Severe
Certainty: Likely

Resource Info

Resource Description (Required)
Attached image shows Flash Flood threat as depicted in the SARFFG web interface

Resource URI
https://www.hrcwater.org/images/cap_mess

Image PNG has been placed at above location
Cancel Image Attachment

Event Description (Optional)
On Wednesday, December 11, 2019 <Agency> issued a flash flood warning for the south-eastern region of the Zambezia province. This warning includes, but is not limited to, the region from the city of Quelimane down to the region of the city of Chinde.

This warning is in effect from 8:00pm on December 11th, 2019 CAT until 2:00am on December 12th, 2019 CAT.

Heavy rains will likely lead to flooding, with likely extensive damage to houses and property in the area, as well as the potential for loss of life.

Instruction (Optional)
If you are in the warning area, avoid low-lying areas or move to higher ground immediately. Residents living along streams and creeks should take immediate precautions to protect life and property. Do not attempt to cross swiftly flowing waters or waters of unknown depth.

View And Validate Raw XML

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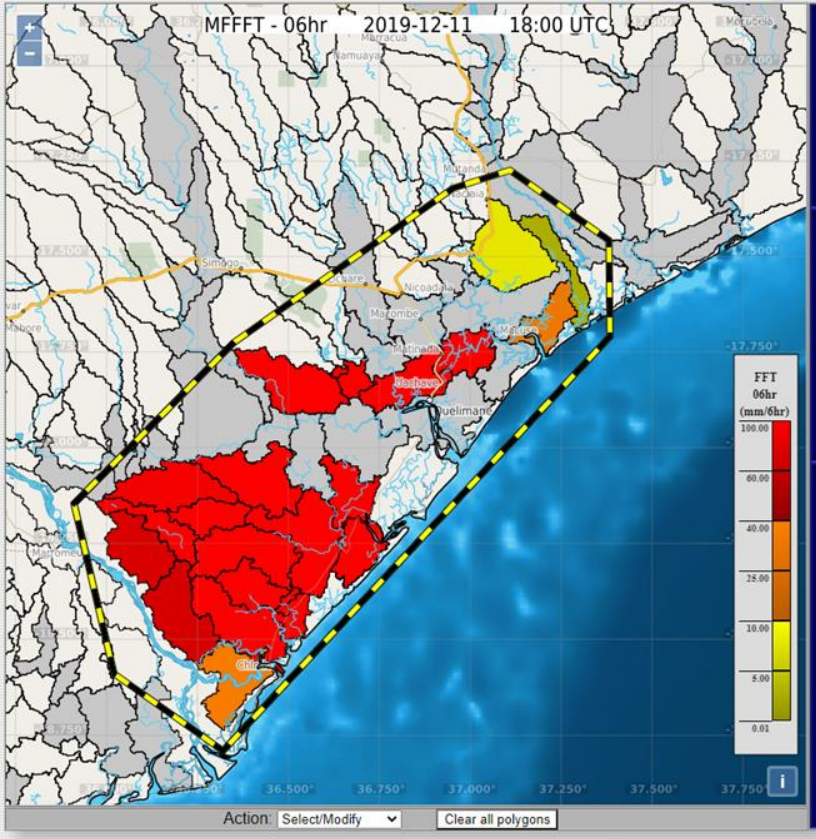
Hydrologic Research Center (HRC)

2019-12-11 21:56:38 SAST

SARFFGS - South Africa Region Flash Flood Guidance System

2019-12-11 19:56:38 UTC

CAP Alert Composer



Action: Select/Modify | Clear all polygons

Alert Info

Message ID: kfipvp3c
Sender: cap_sample@hrcwater.org
Time Sent: 2019-12-12T01:06:38-00:00
Message Type: Alert
Status: Actual
Scope: Public

Event Info

Event Type (Required): High Risk of Flooding
Category: Select option(s)
Response Type: Select option(s)
Urgency: Expected
Severity: Severe
Certainty: Likely

Resource Info

Resource Description (Required):
Attached image shows Flash Flood threat as depicted in the SARFFG web interface

Resource URI: https://www.hrcwater.org/images/cap_mess

Image PNG has been placed at above location

Cancel Image Attachment

Event Description (Optional)

On Wednesday, December 11, 2019 <Agency> issued a flash flood warning for the south-eastern region of the Zambezia province. This warning includes, but is not limited to, the region from the city of Quelimane down to the region of the city of Chinde.

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Help

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